AMENDMENTS TO THE CLAIMS

Please amend Claims 1, 10, 17, 27, 28, and 30 as indicated below.

1. (Currently Amended) An audio enhancement system uniquely adapted for use in a near-field audio reproduction system, the audio enhancement system comprising:

a first high-pass filter which receives first audio information on a ~~first~~ right input, the first high-pass filter configured to filter a first set of bass components in the ~~first~~ right input relative to other frequencies in the ~~first~~ right input to create first filtered audio information wherein ~~at least a portion of~~ the first set of bass components in the right input are removed ~~from~~ in the first filtered audio information;

a second high-pass filter which receives second audio information on a left ~~second~~ input, the second high-pass filter configured to filter a second set of bass components in the second input relative to other frequencies in the ~~second~~ left input to create second filtered audio information wherein ~~at least a portion of~~ the second set of base components in the left input are removed ~~from~~ in the second filtered audio information;

a difference circuit that receives the first filtered audio information and the second filtered audio information, wherein the difference circuit identifies difference information in the first and second filtered audio information;

an equalizer in communication with the difference circuit, the equalizer configured to modifying the frequency response of the difference information to create processed difference information having a level of equalization varying with respect to the frequency component of the processed difference information, wherein the level of equalization is adapted to exploit the acoustics of a human ear and especially those unique to a near-field audio system, the level of equalization comprising:

a maximum gain occurring at a maximum-gain frequency of approximately 100 to 150 Hz, a minimum gain occurring at a minimum-gain frequency of approximately 1680 to 2520 Hz, and a mid-gain of approximately one-half the difference between the maximum gain and the minimum gain occurring at a mid-gain frequency of approximately 5600 to 8400 Hz;

bass attenuation of the difference information relative to the maximum gain, the bass attenuation occurring below the maximum-gain frequency and increasing with a reduction in difference-information frequency to prevent over amplification of a speaker; and

attenuation of the difference information relative to the maximum gain at a mid-range of frequencies, the attenuation occurring above the maximum gain frequency and increasing with a corresponding increase in difference-information frequency up to the minimum-gain frequency, the attenuation decreasing above the minimum-gain frequency with an increase in difference-information frequency up to the mid-gain frequency; and

a summing circuit that combines the processed difference information with at least a portion of the first set of bass components in the right input ~~first audio information~~ that were removed by the first high-pass filter to create an enhanced first output that comprises at least a portion of the first set of bass components that were removed by the first high-pass filter and at least a portion of the processed difference information, and

the summing circuit also configured to combine the processed difference information with at least a portion of the second set of bass components in the ~~second audio information~~ left input that were removed by the second high-pass filter to create an enhanced second output that comprises at least a portion of the second set of bass components that were removed by the second high-pass filter and at least a portion of the processed difference information.

2. (Previously Presented) The audio enhancement system of Claim 1 wherein the difference circuit, the equalizer and the summing circuit are implemented in a digital signal processor.

3. (Previously Presented) The audio enhancement system of Claim 1 wherein the bass attenuation increases at a rate of approximately 6 decibels per octave, the mid-range attenuation increases below the minimum-gain frequency at a rate of approximately 6 decibels per octave, and the mid-range attenuation decreases above the minimum-gain frequency at a rate of approximately 6 decibels per octave.

4. (Original) The audio enhancement system of Claim 1 further comprising an attenuator that attenuates the difference information by a fixed amount substantially across an audible frequency spectrum.

5. (Previously Presented) The audio enhancement system of Claim 1, wherein the first and second high-pass filters attenuate very low frequency components of the first and second inputs.

6. (Previously Presented) The audio enhancement system of Claim 5 wherein the first and second high-pass filters are implemented in a digital signal processor.

7. (Previously Presented) The audio enhancement system of Claim 6 wherein the first and second high-pass filters have a cutoff frequency in the range of 125 to 200 Hz.

8. (Original). The apparatus of Claim 1 further comprising a level adjust circuit in communication with the difference circuit, the level adjust circuit configured to adjust the level of the difference information.

9. (Canceled)

10. (Currently Amended) An apparatus for enhancing sound, the apparatus comprising:

a first high-pass filter which receives first audio information on a first input, the first high-pass filter configured to filter a first set of bass components from the first audio information to create first filtered information wherein ~~at please a portion of~~ the first set of bass components have been filtered from the first audio information;

a second high-pass filter which receives second audio information on a second input, the second high-pass filter configured to filter a second set of bass components from the second audio information to create second filtered audio information wherein ~~at least a portion of~~ the second set of bass components have been filtered from the second audio information;

a difference circuit in communication with the first and second high-pass filters, the difference circuit configured to identify the difference information in the first and second filtered audio information;

an equalizer in communication with the difference circuit, the equalizer configured to spectrally shape the difference information; and

a summing circuit in communication with the equalizer and the first input and the second input, the summing circuit configured to combine the spectrally shaped difference information with ~~a portion of the~~ the first set of bass components that were filtered by the first high-pass filter from the first audio information on the first input to generate a first output comprising at least a portion of the first set of bass components filtered by the first high-pass filter ~~in the first audio information~~ and at least a portion of the spectrally shaped difference information,

the summing circuit further configured to combine the spectrally shaped difference information with the second set of bass components that were filtered from the second audio information by the second high-pass filter ~~on the second~~

~~input~~ to generate a second output comprising at least a portion of the second set of bass components filtered by the second high-pass filter ~~in the second audio information~~ and at least a portion of the spectrally shaped difference information; and

wherein the difference information is spectrally shaped by the equalizer by applying a perspective curve characterized by a maximum gain within a first frequency range of 100 to 150 Hz and the curve characterized by a minimum gain within a second frequency range of 1680 to 2520 Hz, wherein the curve decreases at a rate of approximately 6 decibels per octave below the first frequency range and above the first frequency range towards the second frequency range, the curve further increasing at a rate of approximately 6 decibels per octave above the second frequency range.

11. (Original) The apparatus of Claim 10 wherein the maximum gain and the minimum gain are separated by approximately 12 decibels.

12. (Previously Presented) The apparatus of Claim 10 wherein the perspective curve is adjustable to raise or lower the maximum and minimum-gain frequencies with the maximum-gain range and the minimum-gain range.

13. (Previously Presented) The apparatus of Claim 10 further comprising a level adjust circuit in communication with the difference circuit, the level adjust circuit configured to adjust the level of the difference information.

14. (Previously Presented) The apparatus of Claim 10 wherein the first and second high-pass filters, the difference circuit, the equalizer, and the summing circuit are implemented in a digital signal processor.

15. (Previously Presented) The apparatus of Claim 10 further comprising an attenuator that attenuates the difference information by a fixed amount substantially across an audible frequency spectrum.

16. (Canceled)

17. (Currently Amended) An apparatus for enhancing sound, the apparatus comprising:

a first input and a second input wherein the first and second inputs comprise first and second audio information with bass components and other frequencies;

at least one filter that filters a first set of bass components from the first input and a second set of bass components from the second input;

a difference circuit configured to identify difference information in the first and second inputs, wherein at least a portion of the bass components in the first and second inputs are removed from the difference information;

an equalizer configured to spectrally shape the difference information in the first and second inputs, wherein the difference information is spectrally shaped by the equalizer by applying a perspective curve characterized by a maximum gain within a first frequency range of 100 to 150 Hz and the curve characterized by a minimum gain within a second frequency range of 1680 to 2520 Hz, wherein the curve decreases at a rate of approximately 6 decibels per octave below the first frequency range and above the first frequency range towards the second frequency range, the curve further increasing at a rate of approximately 6 decibels per octave above the second frequency range, and wherein the equalizer does not spectrally shape the first and second sets of bass components filtered by the filter ~~lower frequencies~~;

a summing circuit configured to combine the spectrally shaped difference information with at least a portion of the first set of bass components that were filtered by the filter ~~removed from the difference information,~~ to generate a first output comprising at least a portion of the first set of bass components that were filtered by the filter and the spectrally shaped difference information, and

the summing circuit further configured to combine the spectrally shaped difference information with at least a portion of the second set of bass

components that were filtered by the filter ~~removed from the difference information~~ to generate a second output comprising at least a portion of the second set of bass components filtered by the filter and the spectrally shaped difference information.

18. (Original) The apparatus of Claim 17 wherein the maximum gain and the minimum gain are separated by approximately 12 decibels.

19. (Previously Presented) The apparatus of Claim 17 wherein the perspective curve is adjustable to raise or lower the maximum and minimum-gain frequencies with the maximum-gain range and the minimum-gain range.

20. (Previously Presented) The apparatus of Claim 17 further comprising a level adjust circuit in communication with the difference circuit, the level adjust circuit configured to adjust the level of the difference information.

21. (Previously Presented) The apparatus of Claim 17 wherein the difference circuit, the equalizer, and the summing circuit are implemented in a digital signal processor.

22. (Previously Presented) The apparatus of Claim 17 further comprising an attenuator that attenuates the difference information by a fixed amount substantially across an audible frequency spectrum.

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Currently Amended) A method for enhancing sound, the method comprising:

receiving at least a first input and a second input, wherein the first ~~and second inputs comprise~~ input comprises at least a first set of bass components

and a first set of other frequencies and wherein the second input comprises at least a second set of bass components and a second set of other frequencies;

filtering the first and second bass components in the first and second inputs;

spectrally shaping difference information in the first and second inputs wherein at least a portion of the first and second bass components have been filtered, wherein spectrally shaping the difference information boosts the amplitudes of the second set of frequencies ;

combining the spectrally shaped difference information with at least a portion of the first set of bass components in the first input to generate a first output that comprises at least a portion of the first set of bass components that were filtered by the filter ~~in the first input~~ and the spectrally shaped difference information;

combining the spectrally shaped difference information with at least a portion of the second set of bass components in the second input to generate a second output that comprises at least a portion of the second set of bass components that were filtered by the filter and the spectrally shaped difference information;

wherein spectrally shaping the difference information further reduces the amplitudes of a third set of frequencies relative to the amplitudes of the second set of frequencies, the third set of frequencies occurring at higher frequencies than the second set of frequencies; and

wherein a maximum reduction of the amplitudes of the third set of frequencies occurs at approximately 2.1 kilohertz.

28. (Currently Amended) A method for enhancing sound, the method comprising:

receiving at least a first input and a second input, wherein the first and second inputs comprise at least a first set of bass components and a second set of other frequencies;

filtering the first set of bass components in the first input;

spectrally shaping difference information in the first and second inputs, wherein spectrally shaping the difference information boosts the amplitudes of the second set of frequencies;

combining the spectrally shaped difference information with at least a portion of the ~~fist~~ first set of bass components filtered in the first input to generate an output that contains the spectrally shaped difference information and the portion of the first set of bass components filtered in the first input;

wherein spectrally shaping the difference information further reduces the amplitudes of a third set of frequencies relative to the amplitudes of the second set of frequencies, the third set of frequencies occurring at higher frequencies than the second set of frequencies; and wherein spectrally shaping the difference information further boosts the amplitudes of a fourth set of frequencies relative to the amplitudes of the third set of frequencies, the fourth set of frequencies occurring at higher frequencies than the third set of frequencies.

29. (Previously Presented) The method of Claim 28 wherein a maximum boost of the amplitudes of the fourth set of frequencies occurs above approximately 2.1 kilohertz.

30. (Currently Amended) A method for enhancing sound, the method comprising:

receiving at least a first input and a second input, wherein the first and second inputs comprise a first set of bass components and a second set of frequencies that occur at other frequencies;

filtering the first set of bass components in the first and second inputs;

spectrally shaping difference information in the first and second inputs, wherein spectrally shaping the difference information modifies the amplitudes of the second set of frequencies; and

combining the spectrally shaped difference information with at least a portion of the first set of bass components filtered in the first input to generate an output that comprises the portion of the first set of bass components filtered in the first input and the spectrally shaped difference information;

wherein spectrally shaping the difference information further modifies the amplitudes of a third set of frequencies such that the amplitudes of the third set of frequencies are less than the amplitudes of the second set of frequencies, the third set of frequencies occurring at higher frequencies than the second set of frequencies; and

wherein spectrally shaping the difference information further modifies the amplitudes of a fourth set of frequencies such that the amplitudes of the third set of frequencies are greater than the amplitudes of the third set of frequencies, the fourth set of frequencies occurring at higher frequencies than the third set of frequencies.

31. (Previously Presented) The audio enhancement system of Claim 30 wherein spectrally shaping the difference information is performed by a digital signal processor.